IS 7048 (2006): Ship and marine technology - Small weathertight steel hatches [TED 18: Inland, Harbour Crafts and Fishing Vessels]

BLANK PAGE


IS 7048 : 2006
ISO 5778 : 1998

*भारतीय मानक*

# पोत एवं समुद्री प्रौद्योगिकी — छोटे मौसमरोधी इस्पात हैच

*( दूसरा पुनरीक्षण )*

*Indian Standard*

# SHIPS AND MARINE TECHNOLOGY — SMALL WEATHERTIGHT STEEL HATCHES

*( Second Revision )*

ICS 47.020.10



**BUREAU OF INDIAN STANDARDS**
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

*August* 2006

**Price Group 5**

NATIONAL FOREWORD

This Indian Standard (Second Revision) which is identical with ISO 5778 : 1998 'Ships and marine technology — Small weathertight steel hatches' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Inland Harbour Crafts and Fishing Vessels Sectional Committee and approval of the Transport Engineering Division Council.

This standard was originally published in 1991. This revision has been taken up to harmonize it with the latest version of ISO Standard.

The text of the ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to the following International Standard for which Indian Standard also exists. The corresponding Indian Standard which is to be substituted in its place is listed below along with its degree of equivalence for the edition indicated:

| *International Standard* | *Corresponding Indian Standard* | *Degree of Equivalence* |
|---|---|---|
| ISO 262 : 1973 ISO general-purpose metric screw threads — Selected sizes for screws, bolts and nuts | IS 4218 (Part 4) : 2001 ISO general-purpose metric screw threads: Part 4 Selected sizes for screws, bolts and nuts (*second revision*) | Technically Equivalent |

For BIS Certification Marking, details are given in National Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard*

# SHIPS AND MARINE TECHNOLOGY — SMALL WEATHERTIGHT STEEL HATCHES

*( Second Revision )*

## 1 Scope

This International Standard specifies the main dimensions, location and number of fittings, materials and quality of manufacture for small weathertight steel hatches for application on board ships in order to ensure interchangeability of the hatches. The remaining dimensions are left to the manufacturer.

The hatches are suitable for loading operations and for giving access to storage compartments and dry cargo holds. The hatches are not suitable as an access to any kind of tanks and shall not be used as escape hatches.

These hatches generally conform to the requirements of the International Convention on Load Lines 1966 (LLC66). The possibility for application in position 1 and position 2 has to be considered for each situation and, where necessary, the hatch covers shall be provided with additional stiffening.

NOTE — Users of this International Standard should note that while observing the requirements of this standard, they should, at the same time, ensure compliance with such statutory requirements, rules and regulations as may be applicable to the individual ship concerned.

## 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 262:— [1], *ISO general-purpose metric screw threads – Selected sizes for screws, bolts and nuts.*

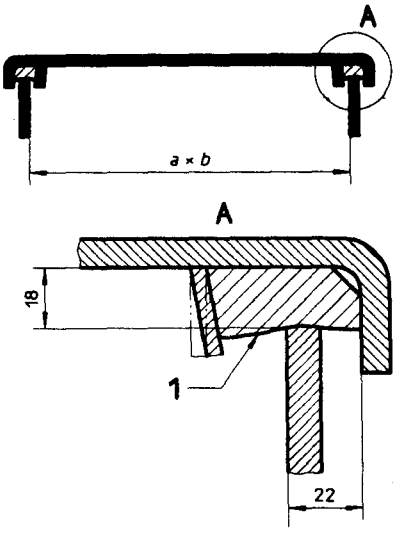
1) To be published. (Revision of ISO 262:1973)

## 3 Main dimensions

### 3.1 Nominal size

The nominal size of a hatch is based on the inside dimensions of the upper part of the coaming, as shown in figure 1 and table 1.

Dimensions in millimetres




**Key**

1 Hatch seal

**Figure 1 — Illustration of nominal sizes**

**Table 1 — Values of nominal sizes**

Dimensions in millimetres

| Nominal size<br>*a* × *b* |
|---|
| 630 × 630 |
| 630 × 830 |
| 830 × 630 |
| 830 × 830 |
| 1 030 × 1 030 |
| 1 330 × 1 330 |

### 3.2 Upper part of coaming

The upper part of the coaming shall conform to the details of figure 2 and table 2. The coaming may have square or rounded corners as shown in figure 2.

In order to prevent damage of the hatch seal, the edges of the upper part of the coaming should be rounded or chamfered.

Dimensions in millimetres

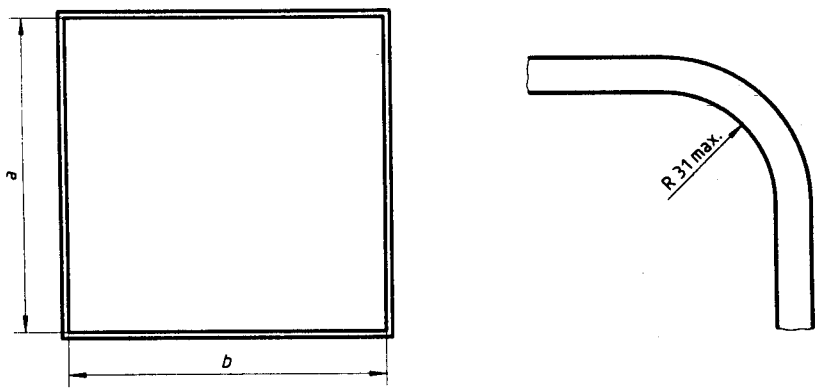



**Figure 2 — Upper part of coaming**

**Table 2 — Sizes of coaming**

Dimensions in millimetres

| Nominal size | *a* $^{0}_{-2}$ | *b* $^{0}_{-2}$ |
|---|---|---|
| 630 x 630 | 630 | 630 |
| 630 x 830 | 630 | 830 |
| 830 x 630 | 830 | 630 |
| 830 x 830 | 830 | 830 |
| 1 030 x 1 030 | 1 030 | 1 030 |
| 1 330 x 1 330 | 1 330 | 1 330 |

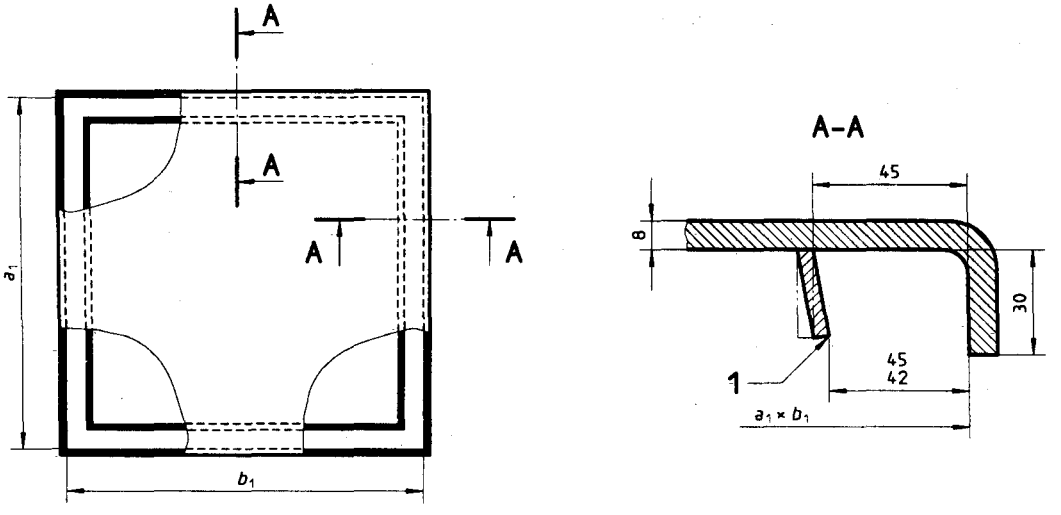
### 3.3 Cover plate

The cover plate shall conform to the details of figure 3 and table 3.

Where the nominal size of the cover plate exceeds 830 mm x 830 mm, the cover plate shall be stiffened in accordance with Regulation 16 (2) of the International Convention on Load Lines (ILLC) 1966.

The hatch-seal retaining bar can be placed in an inclined or vertical position, as indicated in figure 3.

Dimensions in millimetres




**Key**

1 Hatch seal retaining bar
Flat 25 x 4

**Figure 3 — Cover plates**

**Table 3 — Sizes of cover plate**

Dimensions in millimetres

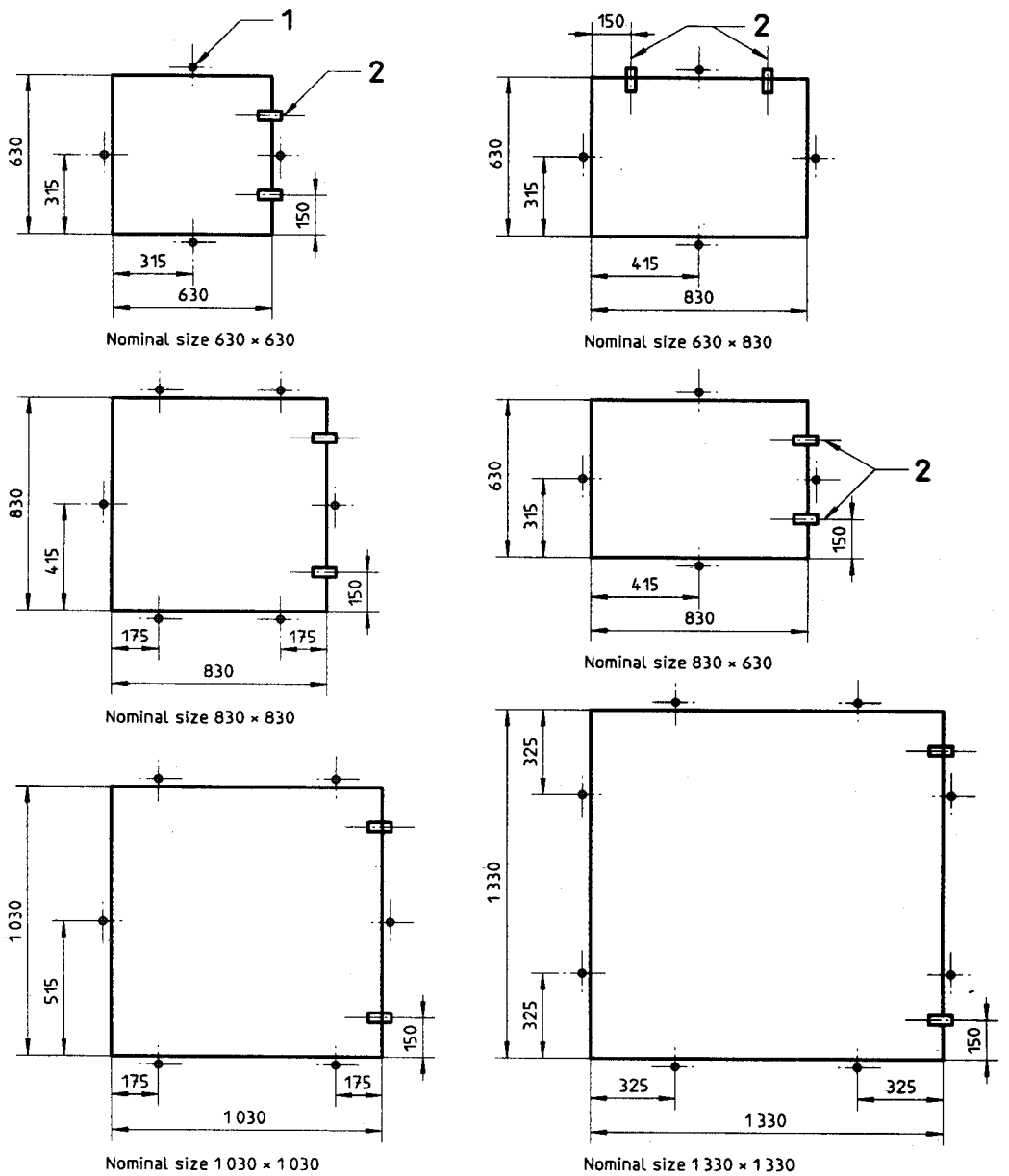
| Nominal size | $a_1$ ± 2 | $b_1$ ± 2 |
|---|---|---|
| 630 x 630 | 674 | 674 |
| 630 x 830 | 674 | 874 |
| 830 x 630 | 874 | 674 |
| 830 x 830 | 874 | 874 |
| 1 030 x 1 030 | 1 074 | 1 074 |
| 1 330 x 1 330 | 1 374 | 1 374 |

## 3.4 Fittings

### 3.4.1 Location of closing devices and hinges

All the values given in figure 4, for centre lines of closing devices and hinges, refer to the inside dimensions (nominal size) of the upper part of the coaming.

Dimensions in millimetres




**Key**

1 Closing device

2 Centre line of hinge

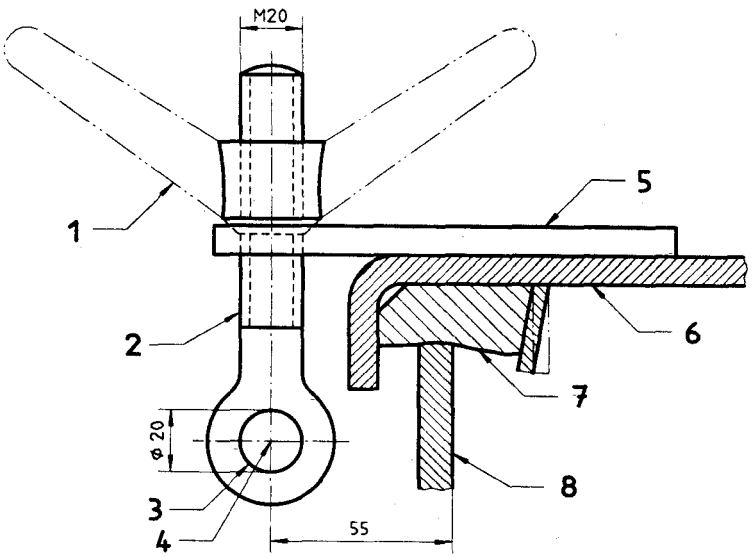
**Figure 4 — Positions of closing devices and hinges**

### 3.4.2 Closing devices

Closing devices shall conform to the dimensions of figure 5.

The wing nut shall be suitable for applying a torque convenient for tightness, by only one man without the help of any tools. Threads of wing nuts and toggle bolts shall be in accordance with ISO 262.

Dimensions in millimetres




**Key**

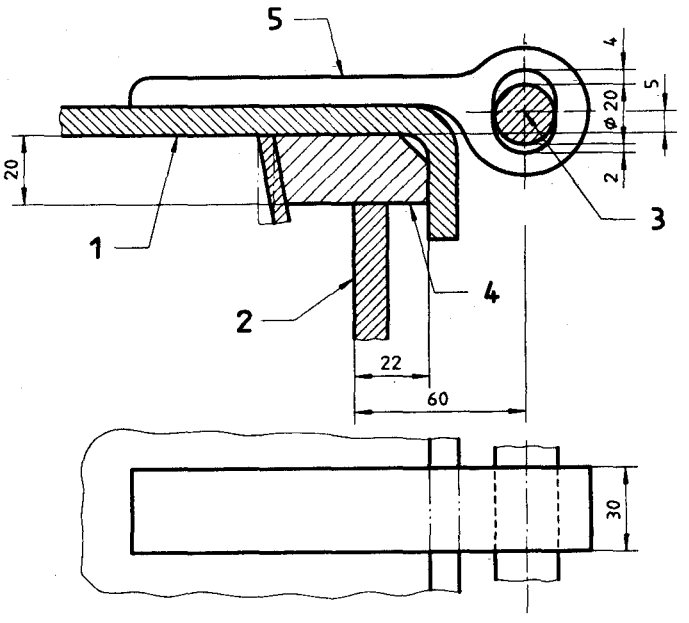
1 Wing nut (typical shape)
2 Toggle bolt
3 Toggle bolt pin
4 Centre of toggle bolt
5 Lug
6 Cover plate
7 Hatch seal
8 Coaming

**Figure 5 — Closing device**

### 3.4.3 Hinges

Two hinges shall be fitted to each hatch and shall conform to the dimensions of figure 6. Each hinge shall be provided with an oval hole, in order to allow the closing devices to compress the hatch seal.

Dimensions in millimetres




**Key**

1 Cover plate
2 Coaming
3 Centre of hinge pin
4 Hatch seal, non-compressed
5 Typical shape

**Figure 6 — Hinge**

### 3.4.4 Hatch seal

The hatch seal shall have a cross-section of 45 mm x 20 mm (see figure 7), an initial compression of 2 mm being allowed.

The hatch seal shall be fitted to the cover plates as indicated in figure 1 and shall be secured by a retaining bar. The hatch seal shall be bonded to the cover plate by an adhesive suitable for marine conditions.

It shall be ensured, by a depth stop positioned on or near the centre line of each closing device, that the hatch seal material cannot be compressed more than 4 mm.

Dimensions in millimetres

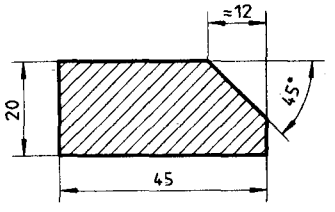



**Figure 7 — Hatch seal, cross-section**

### 3.4.5 Ancillary fittings

It is recommended that provision be made for securing the hatch cover in the raised position and that hatch covers be provided with counterbalance weights when necessary.

## 4 Materials

The coamings and covers shall be manufactured from weldable steel of 340 N/mm² minimum tensile strength or equivalent shipbuilding-quality steel.

The hatch-seal retaining bars, wing nuts, hinges, lugs and ancillary fittings shall be manufactured from weldable mild steel of 340 N/mm² minimum tensile strength.

The toggle bolts and their pins shall be manufactured from corrosion-resistant materials of 350 N/mm² minimum tensile strength.

The quality of the resilient seal material forming the hatch seal shall be satisfactory for service under marine conditions and shall provide effective and lasting sealing and resealing properties when the hatch is tightened under normal conditions.

## 5 Quality of manufacture

Coamings and covers shall be free from distortion.

Coamings, covers and fittings shall be free from any exposed rough edges likely to cause injury to persons.

For coamings see also 3.2.

The coamings and covers shall be suitably treated by blast cleaning or another process to remove scale and surface deposits and shall be given a priming coat of paint to inhibit subsequent corrosion.

Upon assembly of the completed coaming and cover, the manufacturer shall ensure that there is correct registry of the edge of the coaming with the hatch seal material and continuous contact between the two components when the hatch is closed.

## 6 Testing of weathertightness

The completed hatch, when installed on board ship, shall be closed and secured in a normal manner, and then subjected to a test (hose test or equivalent test) carried out to the satisfaction of the representative of the regulatory body concerned.

## 7 Designation

Hatches conforming to this International Standard shall be designated by the following indications, in the order given:

a) denomination: hatch;

b) number of this International Standard: ISO 5778;

c) nominal size, as specified in table 1.

EXAMPLE

Designation of a small weathertight steel hatch in accordance with this International Standard with the nominal size 830 mm × 630 mm:

**Hatch ISO 5778 — 830 × 630**

# NATIONAL ANNEX A

( *National Foreword* )

## A-1 BIS CERTIFICATION MARKING

**A-1.1** The product may also be marked with the Standard Mark.

**A-1.1.1** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

**Bureau of Indian Standards**

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.



**Review of Indian Standards**

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc: No. TED 18 (518).

**Amendments Issued Since Publication**

| Amend No. | Date of Issue | Text Affected |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

BUREAU OF INDIAN STANDARDS

**Headquarters:**

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
*Telephones*: 2323 0131, 2323 3375, 2323 9402 *website* : www.bis.org.in

| **Regional Offices:** | | Telephones |
|---|---|---|
| Central | : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002 | 2323 7617, 2323 3841 |
| Eastern | : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054 | 2337 8499, 2337 8561, 2337 8626, 2337 9120 |
| Northern | : SCO 335-336, Sector 34-A, CHANDIGARH 160022 | 260 3843, 260 9285 |
| Southern | : C.I.T. Campus, IV Cross Road, CHENNAI 600113 | 2254 1216, 2254 1442, 2254 2519, 2254 2315 |
| Western | : Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093 | 2832 9295, 2832 7858, 2832 7891, 2832 7892 |

**Branches**: AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. PARWANOO. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM. VISAKHAPATNAM.

Printed at Simco Printing Press, Delhi